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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/581,415	Confirmation No. 3724
Applicant	:	Ulrich MAIER et al.	
Filed	:	June 2, 2006	
TC/A.U.	:	3753	
Examiner	:	P. Brown	
Docket No.	:	R.305913	
Customer No.	:	02119	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: August 9, 2010

AMENDMENT UNDER 37 C.F.R. § 1.116

Sir:

In response to the Final Office action of May 10, 2010, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 8 of this paper.

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-9. **(Canceled)**

10. **(Currently amended)** **A high-pressure fuel pump having** [[In]] an inlet valve assembly ~~of a high-pressure fuel pump~~ comprising a valve element disposed in a valve chamber **of the high-pressure fuel pump** and a fluid conduit adjoining the valve chamber on the upstream side, the valve element alternatively opening and closing the fluid conduit on the upstream side of the valve chamber, the improvement wherein the fluid conduit has a substantially constant width and is embodied such that a swirl-type rotation about the longitudinal axis of the fluid conduit is impressed on the fluid stream that flows toward the valve chamber, without a constriction of this fluid stream being produced by the conduit in the production of the swirl-type rotation of the fluid, so that the swirl-type rotation of the fluid results in improved efficiency of the valve assembly and less wear of the valve element.

11. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 10, wherein the fluid conduit comprises a first conduit portion and a second conduit portion adjoining the first conduit portion, the longitudinal axes of the first and second

conduit portions being at an angle < 180° to one another, and the longitudinal axis of the first conduit portion being laterally offset from the longitudinal axis of the second conduit portion.

12. **(Currently amended)** **In an inlet valve assembly of a high-pressure fuel pump comprising a valve element disposed in a valve chamber and a fluid conduit adjoining the valve chamber on the upstream side, the valve element alternatively opening and closing the fluid conduit on the upstream side of the valve chamber, the improvement wherein the fluid conduit has a substantially constant width and is embodied such that a swirl-type rotation about the longitudinal axis of the fluid conduit is impressed on the fluid stream that flows toward the valve chamber, without a constriction of this fluid stream being produced by the conduit in the production of the swirl-type rotation of the fluid, so that the swirl-type rotation of the fluid results in improved efficiency of the valve assembly and less wear of the valve element, wherein the fluid conduit comprises a first conduit portion and a second conduit portion adjoining the first conduit portion, the longitudinal axes of the first and second conduit portions being at an angle < 180° to one another, and the longitudinal axis of the first conduit portion being laterally offset from the longitudinal axis of the second conduit portion, and** ~~The valve assembly as recited in claim 11,~~ wherein the longitudinal axes of the first and second conduit portions are at least approximately at a right angle to one another.

13. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 10, further comprising a ball as the valve element.

14. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 11, further comprising a ball as the valve element.

15. **(Previously presented)** The valve assembly as recited in claim 12, further comprising a ball as the valve element.

16. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 11, wherein the first and second conduit portions, in cross section, have at least approximately the same radius; and wherein the lateral offset of the longitudinal axes is greater than the radius.

17. **(Previously presented)** The valve assembly as recited in claim 12, wherein the first and second conduit portions, in cross section, have at least approximately the same radius; and wherein the lateral offset of the longitudinal axes is greater than the radius.

18. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 14, wherein the first and second conduit portions, in cross section, have at least approximately the same radius; and wherein the lateral offset of the longitudinal axes is greater than the radius.

19. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 11, further comprising a transition region between the first conduit portion and the

second conduit portion, the transition region being machined by means of electrochemical removal of material.

20. **(Previously presented)** The valve assembly as recited in claim 12, further comprising a transition region between the first conduit portion and the second conduit portion, the transition region being machined by means of electrochemical removal of material.

21. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 14, further comprising a transition region between the first conduit portion and the second conduit portion, the transition region being machined by means of electrochemical removal of material.

22. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 16, further comprising a transition region between the first conduit portion and the second conduit portion, the transition region being machined by means of electrochemical removal of material.

23. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 19, wherein the transition region comprises a wall that is curved from the first conduit portion to the second conduit portion.

24. **(Previously presented)** The valve assembly as recited in claim 20, wherein the transition region comprises a wall that is curved from the first conduit portion to the second conduit portion.

25. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 21, wherein the transition region comprises a wall that is curved from the first conduit portion to the second conduit portion.

26. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 22, wherein the transition region comprises a wall that is curved from the first conduit portion to the second conduit portion.

27. **(Currently amended)** **In an inlet valve assembly of a high-pressure fuel pump comprising a valve element disposed in a valve chamber and a fluid conduit adjoining the valve chamber on the upstream side, the valve element alternatively opening and closing the fluid conduit on the upstream side of the valve chamber, the improvement wherein the fluid conduit has a substantially constant width and is embodied such that a swirl-type rotation about the longitudinal axis of the fluid conduit is impressed on the fluid stream that flows toward the valve chamber, without a constriction of this fluid stream being produced by the conduit in the production of the swirl-type rotation of the fluid, so that the swirl-type rotation of the fluid results in improved efficiency of the valve assembly and less wear of the valve element, and wherein the fluid conduit**

comprises a first conduit portion and a second conduit portion adjoining the first conduit portion, the longitudinal axes of the first and second conduit portions being at an angle < 180° to one another, with the longitudinal axis of the first conduit portion being laterally offset from the longitudinal axis of the second conduit portion, and ~~The valve assembly as recited in claim 11,~~ wherein the first conduit portion extends no more than a very small distance past the second conduit portion.

28. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 14, wherein the first conduit portion and the second conduit portion form an angle > 90°.

29. **(Currently amended)** **A high-pressure fuel pump** ~~The valve assembly~~ as recited in claim 11, wherein the first conduit portion and the second conduit portion form an angle > 90°.

REMARKS

Claims 10-29 remain in this application.

In the Final Office action the examiner rejected:

claims 10-12 and 27 as anticipated by Nitzberg et al., US 4,827,961,

claims 13-15, 21 and 25 as unpatentable over Nitzberg et al. in view of Meisenheimer et al.

claims 16, 17, 22 and 26 as unpatentable over Nitzberg et al. in view of Urya et al.

claim 18 as unpatentable over Nitzberg et al. in view of Meisenheimer et al. and Urya et al.,

claims 19, 20, 23, and 24 as unpatentable over Nitzberg et al.,

claims 10, 11 and 29 as unpatentable over Torres et al. in view of Nitzberg et al., and

claims 14 and 28 as unpatentable over Torres et al. in view of Nitzberg et al. and Meisenheimer et al.

Applicants do not believe that the examiner's rejection of claims 10-12 and 27 as anticipated by Nitzberg et al. is a valid rejection. And at this juncture in the prosecution it is important to note that this is the only rejection made against claim 12 and 27.

There are two valve chambers taught in Nitzberg et al. The examiner has pointed to valve chamber 48 in her rejection, the other valve chamber is 54. Applicants believe that the examiner pointed to valve chamber 48 in the rejection so that she could say that the valve 114 of Nitzberg et al. has the property of closing the fluid conduit **upstream** from the valve chamber 48. However, valve chamber 48 does not **adjoin** fluid conduit 56 as required by claim 10. Valve chamber 48 and fluid conduit 56 are separated from each other by valve chamber 54 and also by structures 94 and 98. Thus the rejection of claims 10, 11, 12 and 27

based on Nitzberg et al. under 35 USC 102 fails because the valve chamber 48 and fluid conduit 56 do not adjoin each other as recited in claim 10.

An alternative interpretation of Nitzberg et al. would be to look at chamber 54 as the valve chamber. But considering chamber 54 as the valve chamber fails to make a valid rejection because under this interpretation the valve element 114, and also its counterpart, the unnumbered valve element above it, both close this chamber 54 on the downstream side, not on the upstream side as recited in claim 10. Thus this interpretation does not teach all of the structure recited in claims 10, 11, 12 and 27, and so it also does not make for a valid rejection under 35 USC 102.

Claim 12 includes recitation that the first and second conduit portions are approximately at a right angle with respect to each other. The examiner has shown on figure 2, copied from Nitzberg et al., an interpretation which has the conduit portions at right angles to each other. But the examiner's interpretation is only an approximation which overlooks the slanted offset which is shown but un-numbered in figure 2. This slanted offset is labeled 50 in figure 3. If this offset is considered, then the conduit portions are not at anything like a right angle with respect to each other, but instead these conduit portions are at an acute angle which is considerable less than 90 degrees.

And thus, in addition to the above mentioned deficiencies of the rejection of the base claims 10 and 11, Nitzberg et al. also does not have the structure which is specifically recited in claim 12, that the first and second conduit portions at approximately a right angle with respect to each other.

And claim 27 includes the further recitation that the first conduit portion extends no more than a very small distance past the second conduit portion. But in Nitzberg et al. the first conduit portion extends past the second conduit portion by an amount equal to the distance from line 94/98 to the edge of valve chamber 54, a distance which appears to be approximately ½ the width of the second conduit portion. This is a distance which cannot be considered to be an insignificant, or very small distance.

Thus claim 27 also includes specific structure which is not taught by the reference to Nitzberg et al.

Because of all of these deficiencies in the rejection based on 35 USC 102, claims 12 and 27 have been left identical to their former wording, except for making them independent by incorporating the language of **previous** claims 10 and 11 into both of them while eliminating the transition phrases "The valve assembly as recited in claim 10" and "The valve assembly as recited in claim 11".

Since the only rejection presented against claims 12 and 27 was based on Nitzberg et al. under 35 USC 102, and this rejection has been shown to be invalid, continuing the rejection of claims 12 and 27 under 35 USC 102 is not proper, and accordingly the Finality of the last Office action should be withdrawn. Claims 12 and 27 should either be allowed, or if the examiner continues to reject them, a new rejection is necessary.

And any such new rejection of claims 12 or 27 in turn requires that the examiner withdraw the finality of the present Office action and write a new action.

However, even in spite of the above mentioned deficiencies of the rejections, the wording of claim 10 has been modified so that the pump is now clearly recited to be a part of

the claimed structure, and not just merely being a part of the preamble. In particular, claim 10 now recites that the device is a high-pressure pump, that the pump includes an inlet valve assembly and a valve chamber, and that the valve element of the valve assembly is disposed in the recited valve chamber of the high-pressure pump.

The structure added to claim 10 is clearly shown and disclosed in figures 2, 4, 5 and 8, and is recited in paragraph 35 of the specification.

Since Nitzberg et al. is not a pump and does not teach any pump structure, clearly now any rejection based on Nitzberg et al. under 35 USC 102 cannot possibly be a proper rejection.

And since the structure of Nitzberg et al. is far removed from the pump art, there is no way that any rejection which might be based on pump structure modified in view of Nitzberg et al. could possibly be a valid rejection.

Applicants believe that the above arguments exclude any of the present rejections from being valid rejections. This is especially true for the rejection based on 35 USC 102.

The examiner has also rejected claims 10, 11 and 29 as unpatentable over Torres et al. in view of Nitzberg et al. But this rejection also cannot now be considered to be a valid rejection, since like Nitzberg et al., Torres et al. is not a high-pressure pump. Since neither of Torres et al. nor Nitzberg et al. is a high-pressure pump and neither reference teaches any pump structure, clearly the combination of the two references cannot be said to teach all of the structure as recited in these claims. And if all of the structure is not taught by the references, the structure cannot properly be considered to be obvious under the meaning of 35 USC 103.

Claims 14 and 28 have been rejected under 35 USC 103 as unpatentable over Torres et al. in view of Nitzberg et al. and Meisenheimer et al. But again, Meisenheimer et al., just like Torres et al. and Nitzberg et al., does not teach any pump structure, and thus this combination of references clearly also cannot properly be said to make the structure of these claims, nor the structure of the claims on which they depend, to be obvious.

Claims 13-15, 21 and 25 have been rejected under 35 USC 103 as unpatentable over Nitzberg et al. in view of Meisenheimer et al. But as mentioned above, Meisenheimer et al., just like Nitzberg et al., does not teach any pump structure. And so again, this rejection clearly also is not a valid rejection.

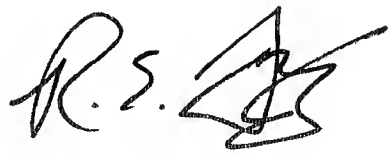
Claims 16, 17, 22 and 26 have been rejected under 35 USC 103 as unpatentable over Nitzberg et al. in view of Urya et al. But Urya et al., just like the other references considered so far, does not include any pump structure. And therefor again, with no teaching of pump structure, this rejection must also fail as an invalid rejection.

Claim 18 has been rejected under 35 USC 103 as unpatentable over Nitzberg et al. in view of Meisenheimer et al. and Urya et al. But again, this rejection does not include any teaching of pump structure, whereas the claims now recite that the structure is part of a high-pressure pump. Accordingly, this also is no longer a valid rejection.

Claims 19, 20, 23 and 24 have been rejected under 35 USC 103 as unpatentable over Nitzberg et al. And just like the above mentioned rejections, this rejection also is not a valid rejection since the prior art applied in this rejection does not include any teaching of pump structure. Since these claims are now recited to include pump structure, this is no longer a valid rejection.

For all of the above reasons, whether singly or taken in combination with each other, entry of this amendment and allowance of the claims are courteously solicited.

Respectfully submitted,



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